

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Previously presented) A method of updating the clock bias between the common clock of the satellites of a radio navigation satellite system and the clock of a radio station of an asynchronous cellular radiotelephone system including a mobile device, a radio navigation satellite system receiver for receiving satellite data supplied by at least four satellites, and an assistance server for improving the acquisition of satellite data by said mobile device,

said method including the following steps:

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,

encapsulating said pseudodistances with the time at which said pseudodistances are calculated,

transmitting said pseudodistances and said time at which said pseudodistances are calculated in the form of a radio signal from said mobile device to said assistance server via said radio station, and

said assistance server determining the position of said mobile device and estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated.

2. (Original) A method according to claim 1, wherein said time at which said pseudodistances are calculated corresponds to time information supplied by said radio station.

3. (Original) A method according to claim 1, wherein said time at which said pseudodistances are calculated is the time according to the clock of said mobile device

at which said pseudodistances are calculated, said method including the following steps:

said mobile device inserting into said radio signal the time it sends said radio signal,

said radio station inserting into said radio signal the time it receives said radio signal,

said assistance server determining a first clock bias between the clock of said mobile device and the common clock of said satellites,

said assistance server estimating a second clock bias between the clock of said mobile device and the clock of said radio station by establishing the difference between said sending time and said receiving time, and

deducing the clock bias between said common clock of said satellites and said clock of said radio station by establishing the difference between said first and second clock bias values.

4. (Previously presented) A method according to claim 1, wherein said clock bias between said common clock of said satellites and said clock of said radio station is stored in an update database.

5. (Canceled)

6. (Previously presented) An assistance service for improving the acquisition of satellite data by a mobile device, wherein a server comprises a database to store a clock bias between the clock of the radio stations of an asynchronous cellular radiotelephone system and a common clock of the satellites of a radio navigation satellite system, wherein said clock bias values are updated by a method comprising the following steps:

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,

encapsulating said pseudodistances with a time at which said pseudodistances are calculated,

transmitting said pseudodistances and said time at which said pseudodistances are calculated in the form of a radio signal from said mobile device to said server via said radio station, and

said server determining the position of said mobile device and estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated.

7. (Previously presented) A method of improvement by an assistance server of the acquisition of satellite data by a mobile device including a radio navigation satellite system receiver in an asynchronous cellular radiotelephone system, said method including the following steps:

said mobile device sending an assistance request to said assistance server via a radio station associated with said mobile device, and

said server identifying a clock bias between the common clock of the satellites and the clock of said radio station as updated by

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,

encapsulating said pseudodistances with a time at which said pseudodistances are calculated,

transmitting said pseudodistances and said time at which said pseudodistances are calculated in the form of a radio signal from said mobile device to said assistance server via said radio station,

determining the position of said mobile device, and

estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated.

8. (Original) A method according to claim 7 including a step of said assistance server transmitting assistance data including:

time information associated with said radio station extracted from the clock bias between the common clock of the satellites and the clock of said radio station as updated by said updating method, and

the time of the common clock of the satellites extracted from the clock bias between the common clock of the satellites and the clock of said radio station as updated by said updating method.

9. (Original) A method according to claim 8, wherein said time information associated with said radio station is transferred as a reference time of the BTS radio signal in the form of hyperframe, superframe and multiframe references and a bit number, and the time of the common clock of the satellites is associated with said BTS reference date.

10. (Original) A method according to claim 7 including the following steps:

said assistance server transmitting assistance data including a clock bias between the common clock of the satellites and the clock of said radio station as updated by said updating method, and

said radio station inserting into a radio signal sent to the mobile device the time said radio station sends said radio signal.

11. (Previously presented) A method of calculating the position of a mobile device including a radio navigation satellite system receiver in an asynchronous cellular radiotelephone system, said method including the following steps:

an assistance server improving the acquisition of satellite data by said mobile device by

said mobile device sending an assistance request to said assistance server via a radio station associated with said mobile device, and

said server identifying the clock bias between the common clock of the satellites and the clock of said radio station as updated by an updating method comprising the following steps:

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,
encapsulating said pseudodistances with a time at which said pseudodistances are calculated,
transmitting said pseudodistances and said time at which said pseudodistances are calculated in the form of a radio signal from said mobile device to said assistance server via said radio station, and
said server determining the position of said mobile device and estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated,
said mobile device acquiring said satellite data,
said mobile device calculating pseudodistances between said mobile device and the satellites from said satellite data, and
said assistance server or said mobile device determining the position of said mobile device.

12. (Currently amended) A mobile device of an asynchronous cellular radiotelephone system including:

a radio navigation satellite system receiver; and

means for determining the position of said mobile device by:

improving the acquisition of satellite data by said mobile device by a ~~method~~ said mobile device sending an assistance request to ~~said~~ an assistance server via a radio station associated with said mobile device, and

identifying the clock bias between the common clock of the satellites and the clock of said radio station as updated by:

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,

encapsulating said pseudodistances with a time at which said pseudodistances are calculated,

transmitting said pseudodistances and said time at which said pseudodistances are calculated in the form of a radio signal from said mobile device to said assistance server via said radio station, and

determining the position of said mobile device and estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated,

the means for determining the position of the mobile device also:

acquiring said satellite data,

calculating pseudodistances between said mobile device and the satellites from said satellite data, and

determining the position of said mobile device.

13. (Currently amended) A method of updating the clock bias between the common clock of the satellites of a radio navigation satellite system and the clock of a radio station of an asynchronous cellular radiotelephone system including a mobile device ~~including with~~ a radio navigation satellite system receiver for receiving satellite data supplied by at least four satellites and exchanging a radio signal with said radio station and an assistance server for improving the acquisition of satellite data by said mobile device, said method including the following steps:

said mobile device receiving said satellite data,

said mobile device calculating pseudodistances between itself and said satellites,

and

said mobile device determining its position and estimating the clock bias between the common clock of said satellites and the clock of said radio station using said pseudodistances and said time at which said pseudodistances are calculated, said time at which said pseudodistances are calculated corresponding to time information supplied by said radio station.

14. (New) The mobile device of claim 12, wherein the time at which the pseudodistances are calculated corresponds to time information supplied by the radio station.

15. (New) The mobile device of claim 12, wherein the time at which the pseudodistances are calculated is the time according to the clock of the mobile device at which the pseudodistances are calculated;

the means for determining the position of the mobile device also inserting into the radio signal the time it sends the radio signal;

the radio station inserting into the radio signal the time it receives the radio signal;

the assistance server determining a first clock bias between the clock of the mobile device and the common clock of the satellites, estimating a second clock bias between the clock of the mobile device and the clock of the radio station by establishing the difference between the sending time and the receiving time, and deducing the clock bias between the common clock of the satellites and the clock of the radio station by establishing the difference between the first and second clock bias values.

16. (New) The mobile device of claim 12, wherein the clock bias between the common clock of the satellites and the clock of the radio station is stored in an update database.

17. (New) The mobile device of claim 12, wherein the assistance server transmits assistance data, including the deduced clock bias between the common clock of the satellites and the clock of the radio station, and the radio station inserts into a radio signal sent to the mobile device the time the radio station sends the radio signal.

18. (New) The method of claim 13, wherein the time at which the pseudodistances are calculated corresponds to time information supplied by the radio station.

19. (New) The method of claim 13, wherein the clock bias between the common clock of the satellites and the clock of the radio station is stored in an update database.

20. (New) The method of claim 13, further comprising:

the assistance server transmitting assistance data comprising time information associated with the radio station extracted from the clock bias between the common clock of the satellites and the clock of the radio station as updated by the updating method and the time of the common clock of the satellites extracted from the clock bias between the common clock of the satellites and the clock of the radio station as updated by the updating method.

21. (New) The method of claim 13, further comprising:

the assistance server transmitting assistance data comprising a clock bias between the common clock of the satellites and the clock of the radio station as updated by the updating method; and

the radio station inserting into a radio signal sent to the mobile device the time the radio station sends the radio signal.